U.S. ARMY

NETWORKING THE SOLDIER

"YOU GIVE A SOLDIER A MISSION, YOU GIVE A LEADER A MISSION AND THEY'VE GOT TO HAVE TOOLS, AND THEY'VE GOT TO HAVE YOUR TRUST AND CONFIDENCE TO EXECUTE AND THEY'VE GOT TO PROVIDE YOU THE CONTEXT FOR YOU TO UNDERSTAND WHAT'S GOING ON - A COMPLETELY DIFFERENT PARADIGM THAN WHEN I WAS GROWING UP. THAT'S WHY WE NEED THE NETWORK."

GEN. MARTIN E. DEMPSEY
CHAIRMAN OF THE JOINT CHIEFS OF STAFF

> FORMING THE NETWORK

To ensure network capabilities are fielded in an integrated and synchronized fashion, while ensuring Army acquisition practices keep pace with emerging technology, the Army has developed a Network Strategy that fundamentally changes how it develops, acquires and fields Mission Command capabilities. The Army will align programs (funding, timelines and integration) through Capability Set Management so that operational units receive network capability sets – integrated from the Tactical Operations Center (TOC) down to the individual Soldier at the tactical edge – in accordance with Army Force Generation (ARFORGEN) requirements.

The Army Campaign Plan contains six top-level Network themes:

1. The Army has established stringent technical standards for both Network infrastructure and applications. These standards, which are aligned with industry standards, will guide materiel development, enhance built-in interoperability and enable the Army to quickly take advantage of commercial innovation while fostering competition.

2. The Army will align programs (funding, timelines and integration) through Capability Set Management so that operational units receive an integrated Network capability set during the reset or train-ready phase of the Army Force Generation (ARFORGEN) cycle.

3. The Army will procure only what is needed by units entering the reset phase rather than committing to purchasing quantities to outfit the entire force at once.

4. The Army will transform its Signal organizations and leverage technological advancements to more efficiently provide greater capability to combatant commanders.

5. The Army will reform service-level acquisition policies and processes in accordance with Section 804 of the Fiscal Year 2010 National Defense Authorization Act.

6. Most importantly, the Army will reduce the user's integration burden by implementing a structured assessment process that culminates with live testing utilizing Brigade Modernization Command in partnership with Army Test and Evaluation Command and the Assistant Secretary of the Army for Acquisition, Logistics and Technology. Each Capability Set will undergo operational evaluations prior to fielding to assess collective functionality, configuration and interoperability of the set and each Network component's individual performance and compliance with established network standards.

"IN THIS DIGITAL AGE, WE'RE NOW ABLE TO PASS INFORMATION RAPIDLY — LARGE QUANTITIES OF INFORMATION TO CREATE A COMMON PICTURE SO THAT COMMANDERS CAN COMMAND EFFECTIVELY AND GET THEIR SOLDIERS TO THE RIGHT PLACE AT THE RIGHT TIME."

BRIG. GEN. RANDAL A. DRAGON
BRIGADE MODERNIZATION COMMAND COMMANDING GENERAL
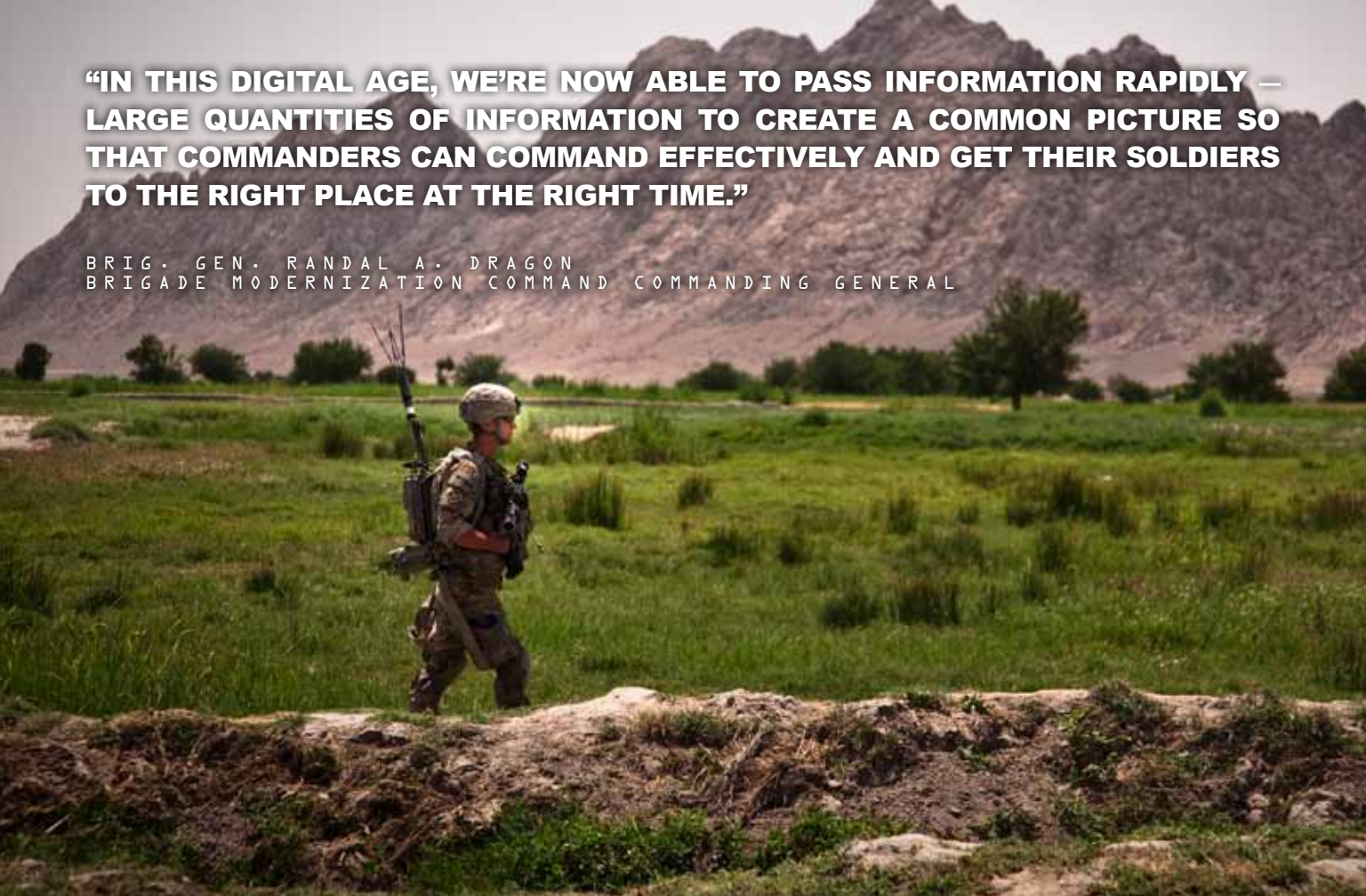
Unified Land Operations - Seize, retain, and exploit the initiative to gain and maintain a position of relative advantage in sustained land operations in order to create the conditions for favorable conflict resolution.

Ability to access key information anytime, anyplace.

Sharing of information to facilitate fire and maneuver, and survive in close combat.

Collaboration capability to aid in seizing and controlling key terrain.

Lethal and non-lethal capabilities, coupled with sensors, to effectively engage targets at extended range.

Ability to distinguish among friend, enemy, and noncombatant.

Integration of indirect fires.

Mission Command on the Move (MCOTM) and Soldier connectivity.

A 21st century expeditionary Army cannot succeed without a robust network. In order to prevent conflict in support of National objectives, shape the environment, and win in operational engagements, the 21st Century Expeditionary Army depends upon a robust network. Soldiers in combat, deployed forces at all echelons, and both the Operational and Institutional Army rely on the Network, and the information and capabilities it stores, hosts and carries.

The Army's portion of the Department of Defense (DoD) network, LandWarNet, will provide Soldiers, civilians, and mission partners information they need, when they need it and in any environment – from home station to the tactical edge. LandWarNet will be a completely integrated and interoperable network, from the highest to the lowest echelon.

The Army is pursuing critical initiatives to build an enterprise capability, including Enterprise Email, calendar-sharing and directory services, and ID and data center consolidation. Enterprise Network initiatives will increase warfighting effectiveness, improve network security, save hundreds of millions of dollars, and reduce infrastructure. Additionally, the Army is transforming business systems IT to better support our business operations and strategic decision making. The Army's enterprise concept requires a Common Operating Environment (COE), which is an approved set of technical standards to which all network applications and systems must adhere.
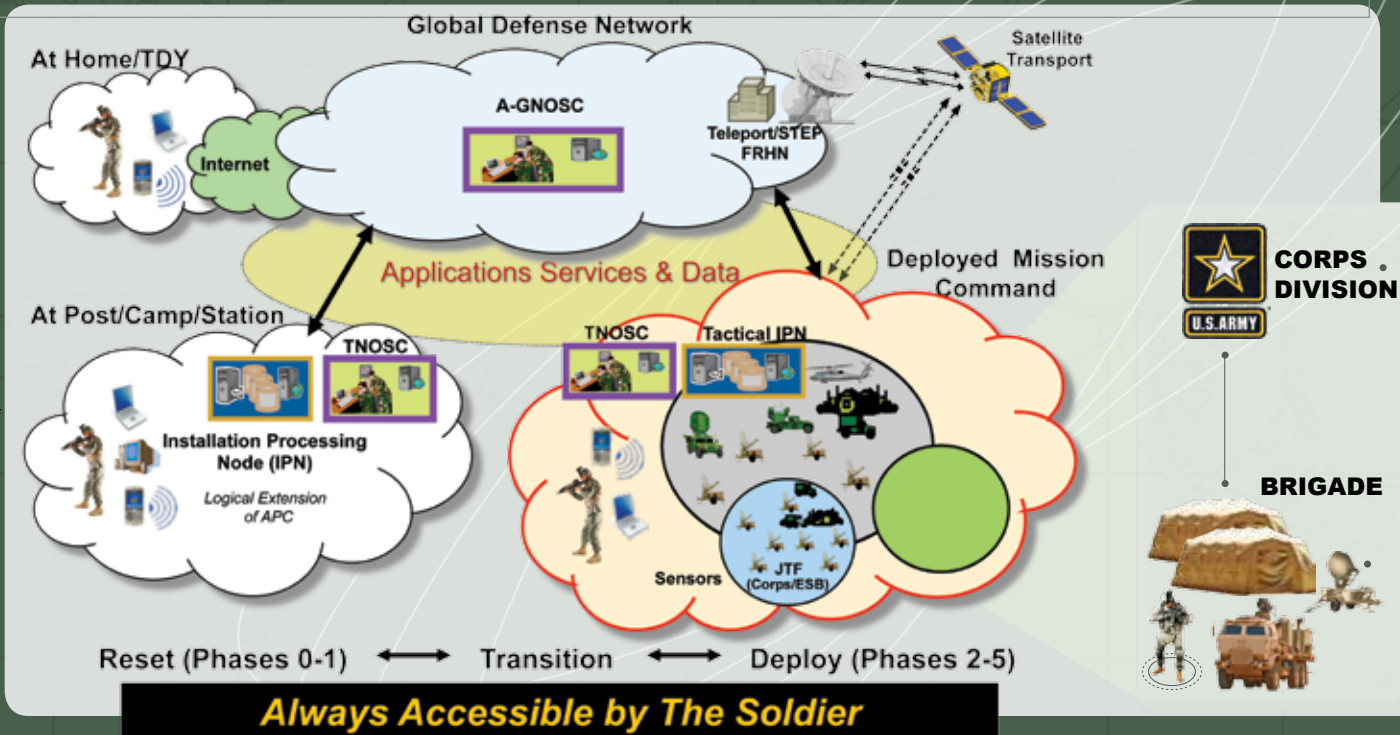
The Army has changed the way it supplies network systems and capabilities to operational units by incrementally aligning the delivery of new technology with the Army Force Generation (ARFORGEN) process. This effort will drive networked capabilities down to the Small Unit and Soldier level — those at the tactical edge who need these critical capabilities the most.
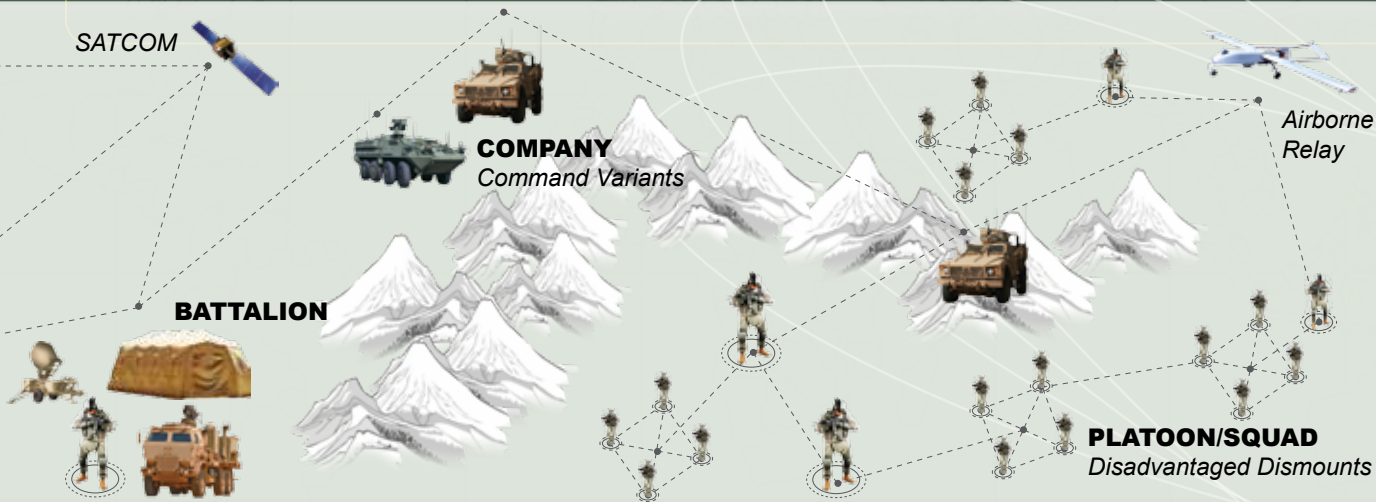
Through a process known as Capability Set Management, the Army has adapted acquisition practices and is aligning programs so that operational units receive better capabilities more quickly through integrated and sustainable network Capability Sets. The Capability Sets will enhance vertical and horizontal connectivity, and provide an integrated network baseline from the static Tactical Operations Center (TOC) to the dismounted Soldier. Fielding the Network as an integrated Capability Set throughout a brigade, rather than fielding individual pieces of equipment, provides Soldiers with the best capability gap solutions, and dramatically reduces/eliminates the integration burden on deployed troops.

Global Defense Network

At Home/TDY

Internet

A-GNOSC

Teleport/STEP FRHN

Satellite Transport

Applications Services & Data

At Post/Camp/Station

TNOSC

Installation Processing Node (IPN)

Logical Extension of APC

TNOSC

Tactical IPN

Deployed Mission Command

Sensors

JTF (Corps/ESB)

Reset (Phases 0-1) ⟷ Transition ⟷ Deploy (Phases 2-5)

Always Accessible by The Soldier

U.S.ARMY

CORPS DIVISION

BRIGADE

The Army is designing and implementing the Network as a holistic enterprise system — not individual piece-parts — with three interconnected blocks.

• <u>Enterprise-Level Activities:</u> the common services that span the Army Network, whether in garrison, en route or deployed, and the technical standards and directives that synchronize activities and ensure seamless information transfer across the Network. Enterprise-level activities serve as the bridge between the installation and deployed environments.

• <u>Installation Infrastructure:</u> consists of the hardware, applications, and services that support units and organizations at the installation level. The Army manages installation connectivity to the Global Information Grid (GIG) as an enterprise-level activity.

• <u>Deployed Mission Command:</u> consists of the Mission Command hardware, applications, and services that support units and organizations while deployed. The tactical level leverages Fixed Regional Hub Nodes for connectivity to enterprise-level services, systems, and applications.

SATCOM

COMPANY
Command Variants

BATTALION

Airborne Relay

PLATOON/SQUAD
Disadvantaged Dismounts

"THE NIE DELIVERED A PROOF OF CONCEPT THAT WILL SIGNIFICANTLY IMPACT THE DEVELOPMENT OF THE ARMY OF 2020."

GEN. ROBERT W. CONE
COMMANDING GENERAL FOR THE U.S. ARMY TRAINING AND DOCTRINE COMMAND

> PROVIDING NETWORK CAPABILITIES

To support Capability Set Management and to ensure that the Army can keep pace with the rapid technology maturation within industry, the Army has transformed its current acquisition methods through a seven-phase Agile Process. The objective is to improve efficiency and effectiveness, reducing the amount of time and resources necessary to respond to the rapid changes in Soldier requirements associated with current operations, emergent information technology and modifications to the Army Force Structure. The Network Integration Evaluation (NIE), as part of the Agile Process, is a series of semiannual, Soldier-driven field evaluations designed to further integrate and rapidly progress the Army's tactical Network.

The Network Integration Evaluation (NIE) is a critical component of the Agile Process. During the evaluations the Army integrates the Network capability and then uses a full Brigade Combat Team to assess network and non-network capabilities in order to determine their implications across Doctrine, Organization, Training, Material, Leadership and Education, Personnel and Facilities (DOTMLPF).

The NIE brings Soldiers, materiel developers, and engineers together to assess potential Network capabilities in a robust operational environment to determine whether they perform as needed, conform to the Network architecture and are interoperable with existing systems. The NIE ensures the Network satisfies the functional requirements of the force, and it relieves the end user of the technology integration burden.

The intent of the NIE construct is three-fold:
1) reduce/eliminate the integration burden on operational formations
2) develop/integrate mission command Capability Sets and
3) provide a forum to leverage industry innovation and to rapidly acquire promising capabilities that solve operational gaps.

> A SOLDIER-DRIVEN EVALUATION PROCESS

This evaluation approach will allow the Army to evaluate Programs of Record and developmental technology from industry more quickly and integrate these technologies prior to fielding to units in combat. Placing new and emerging technologies into the hands of Soldiers early and often provides the critical feedback needed to guide materiel development to buy what we need, when we need it.

Soldier-driven tests and evaluations began in 2011 using the 2nd Brigade Combat Team, 1st Armored Division (2/1 AD). 2/1 AD trains to standard on core and specific tactical mission tasks, tests new concepts and equipment under realistic conditions, and provides detailed, candid DOTMLPF feedback in order to enable effective acquisition decisions. Evaluations will continue to take place on a semi-annual basis, and beginning in fiscal year 2013, the Army will field Brigade Combat Teams with Capability Set 13 – the first fully-integrated set of enhanced networked equipment and capabilities.

Through the Agile Process, the Army will assess capability gaps, rapidly form requirements, solicit mature industry solutions and perform laboratory and field evaluations in order to inform acquisition decisions. This directly supports Capability Set Management in identifying critical operational gaps and solutions, while providing operational validation of these solutions for inclusion in current or future capability sets.

The Agile Process seeks technology improvements from both large and small industry partners to fill hardware and software needs as determined by requirements analysis and linked to the Army Forces Generation (ARFORGEN) model.

By employing the Agile Process, the Army is leveraging industry and technological advances, accelerating the pace of network modernization to a rate unachievable by traditional acquisition strategies, in a more cost-effective manner. This incremental modernization approach enables the Army to be responsive to Soldiers' current needs in near-real time, fielding the latest technology as it becomes available, and avoiding long-term production commitments to obsolete technology.

AGILE PROCESS PHASES

The Agile Process consists of seven phases grouped in three basic areas.

• <u>**Phases 0 and I**</u> **focus on identifying requirements and potential solutions. These phases are continuous in nature and react to external changes from ongoing operations, advances in information technology and traditional analysis the Army conducts to modernize the force for the future.**

• <u>**Phases II through V**</u> **focus on assessing potential solutions in both a laboratory and operational environment. Candidate systems are prepared through architectural development, systems integration and Soldier training prior to executing the Network Integration Evaluation.**

• <u>**The final phase, VI,**</u> **consists of HQDA analyzing NIE results to reach a decision point. HQDA collectively aligns requirements, programmatics, and funding to implement NIE recommendations in concert with capability set fielding and ARFORGEN alignment.**
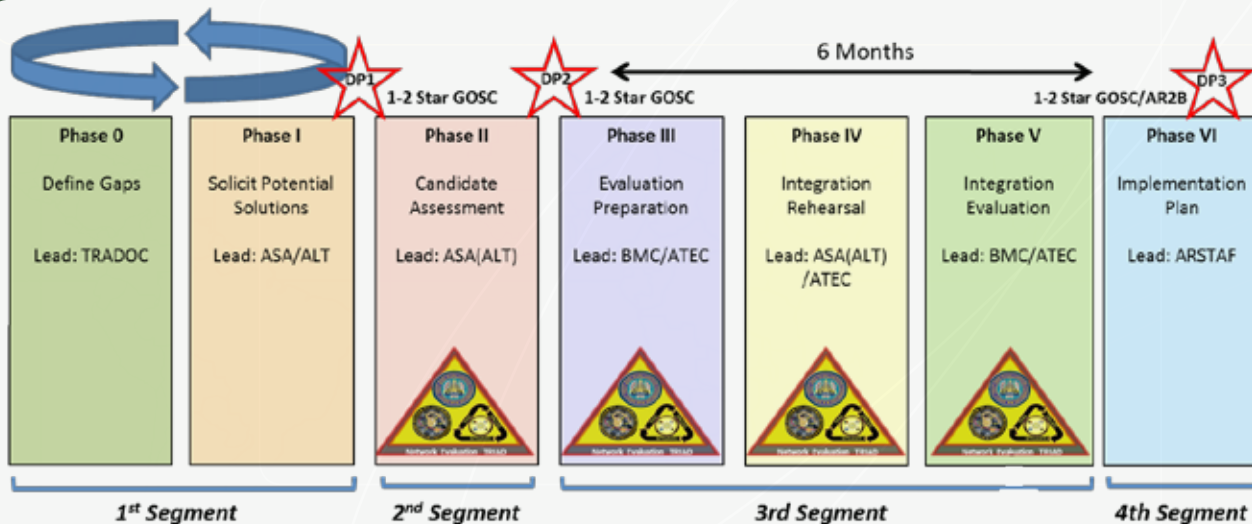
A Capability Set is an entire package of network components, associated equipment and software that provides an integrated network capability from the static Tactical Operations Center (TOC) to the dismounted Soldier. Capability Set 13 (CS 13) will field a network baseline anchored on integration of satellite-based communications and terrestrial networking radios, which can be adjusted annually based on changing requirements, emerging technology, and operational feedback from the NIE. The solutions will provide a baseline network until the Army's networking radio hardware and waveforms are ready for implementation.

CS 13 will provide Soldiers enhanced capability over current theater provided network equipment, by driving the Network down to the squad level through advanced radios and handheld devices, and enhancing Mission Command on the Move by allowing commanders to take the network with them via the Warfighter Information Network-Tactical (WIN-T) Increment 2.

The Agile Process supports synchronized fielding by providing Capability Sets that are integrated and validated (technically, operationally, sustainment and training) prior to fielding. Synchronized Fielding takes prototype designs that have proven technical and operational merit during the NIE and matures them into producible products, while ensuring final system integration and sustainment plans prior to fielding a Capability Set to an operational unit. The Army is synchronizing the implementation and fielding of the Army's first fully-integrated Capability Set – Capability Set 13 – to Brigade Combat Teams beginning in fiscal year 2013. Capability Set 13 will extend the Network down to the individual Soldier and enhance Mission Command on the Move.
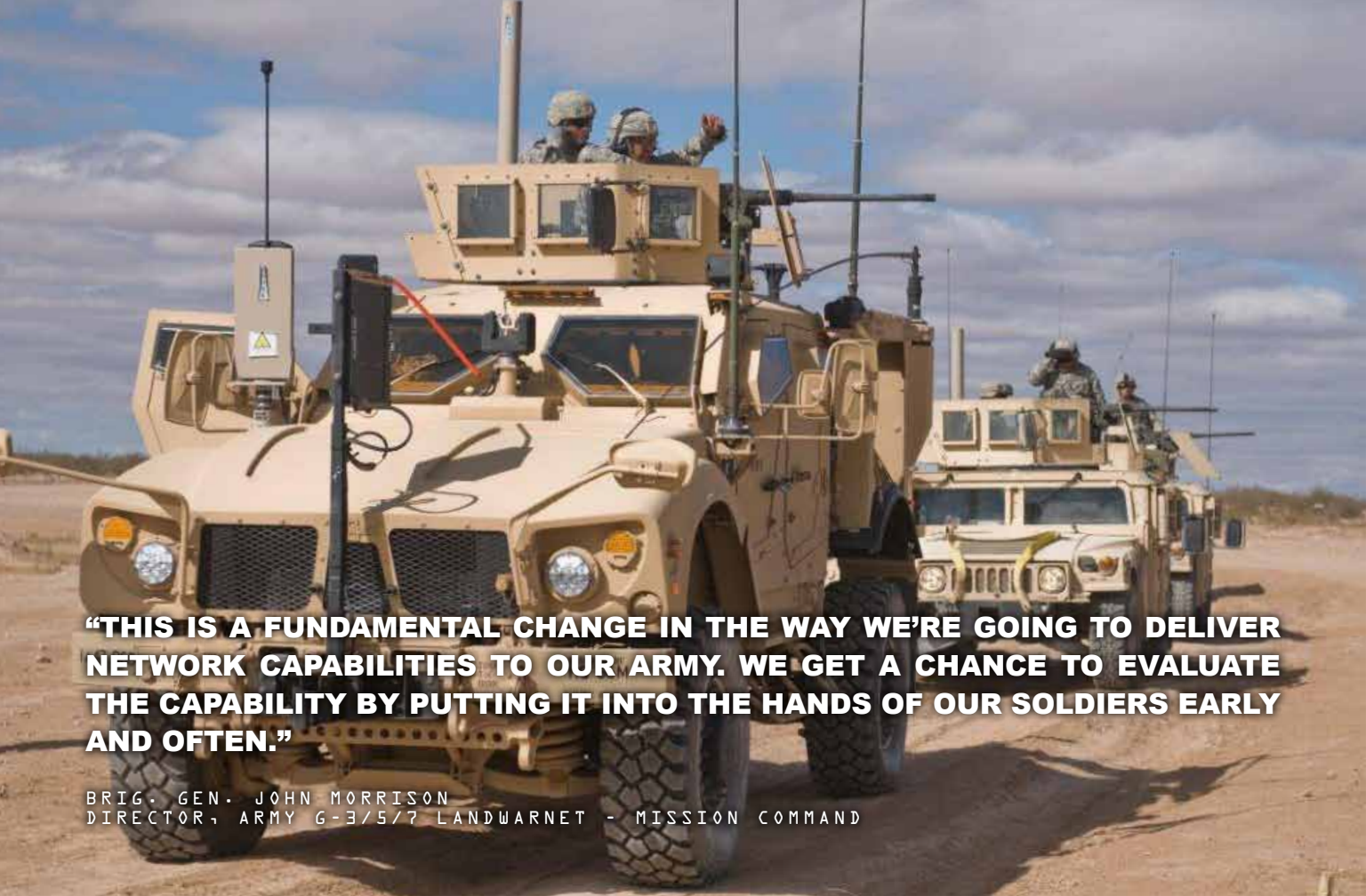
"THIS IS A FUNDAMENTAL CHANGE IN THE WAY WE'RE GOING TO DELIVER NETWORK CAPABILITIES TO OUR ARMY. WE GET A CHANCE TO EVALUATE THE CAPABILITY BY PUTTING IT INTO THE HANDS OF OUR SOLDIERS EARLY AND OFTEN."

BRIG. GEN. JOHN MORRISON
DIRECTOR, ARMY G-3/5/7 LANDWARNET - MISSION COMMAND

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